Abstract

Staring and Perceptions Towards Persons with Facial Disfigurement

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A convenience sample of college students (N=33) enrolled in courses in the College of Health and Human Performance at East Carolina University was used to determine if there were statistically significant relationships between staring and perceptions of people with facial disfigurement. Staring was measured by fixation time in seconds with an Applied Sciences Laboratories (ASL, Watham, MA) 6000 SU eye movement system with Eyehead Integration Software and GazeTracker to see if participants spent more time fixating on people with facial disfigurement than people without facial disfigurement when presented with four photos on a computer monitor. Perceptions of people were measured by the Facial Disfigurement Photograph Scale, a Likert-type scale which measures perceptions of honesty, employability, intelligence, trustworthiness, attractiveness, optimism, effectiveness, popularity, and capability based on a person's appearance in a photo. Results indicated that people with facial disfigurement (M=3.2, SD=1.7) were stared at longer than people without facial disfigurement (M=2.7, SD=1.3); $t=-2.25$, $p<.05$. However, only the perception of capability of people with facial disfigurement was significantly related to staring ($p<.05$).

# Staring and Perceptions Towards Persons with Facial Disfigurement

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STARING AND PERCEPTIONS TOWARDS PERSONS WITH FACIAL DISFIGUREMENT

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# Chapter I: Introduction

Many people have expectations of normal appearance, and deviations from these expectations are not often well-tolerated and can result in stigmatization (Lawrence, Rosenberg, & Fauerbach, 2007). Lawrence, Fauerbach, Heinberg, Doctor, and Thombs (2006) noted that there are a number of clinical descriptions of stigmatizing and dehumanizing behaviors that are directed towards people with differences in appearance. People with facial disfigurement experience stigmatization due to differences in appearance (Lawrence et al., 2007) and are often perceived to be criminals and unintelligent in comparison to other people (Brown, McKenna, Siddhi, McGrouther, & Bayat, 2008; Lawrence, Fauerbach, Heinberg, et al., 2006). Because of their difference in appearance, people with disfiguring injuries cope frequently with the negative responses of others (Bernstein, O'Connell & Chedekel, 1992).

There are few studies that examine the effects of stigmatizing behaviors directed towards people with differences in appearance (Brown et al., 2008; Kent & Keohane, 2001) and even fewer that exclusively examine stigmatizing behavior directed towards people with facial disfigurement (Lawrence, Fauerbach, Heinberg, et al., 2006; Lawrence, Fauerbach & Thombs, 2006; Newell & Marks, 2000; Spence 2008; Tebble, Thomas, & Price, 2004). Additionally, there are no validated measures of stigmatization of people with differences in appearance (Lawrence, Fauerbach, Heinberg, et al., 2006).

Stigma research that examines perceptions of those differences in appearance has been primarily focused on the perceptions of school-aged children, with a few studies on the perceptions of adults (Harper, 1995; Royal & Roberts, 1987; Westbrook, Bauman, & Shinnar, 1992; Wetstein-Kroft & Vargo, 1984). Although little research has been done about the

stigmatization of people with facial disfigurement, theory may provide insight into the phenomenon.

Pryor, Reeder, Yeadon, and Hesson-McInnis (2004) proposed the Dual-Process Model of Reactions to Perceived Stigma as a way to explain the reaction of people to differences. The authors posited that stigmatizing perceptions and attitudes of people are both automatic (or reflexive) and controlled (or planned). Automatic and reflexive factors are immediate and impulsive reactions, while controlled and planned factors are thoughtful or deliberate reactions to stigmatizing conditions (Pryor et al., 2004). Pryor et al. used this dual-process model to explain the contradiction between the verbal reports and nonverbal behaviors of participants without disabilities while interacting with someone with a disability.

The negative effects of facial deformities on social functioning have been "poorly documented in the scientific literature" (Rankin & Borah, 2003, p. 2140). Entertainment media primarily feature young attractive people, which creates an "idealized look" (Rankin & Borah, 2003, p. 2140). This idealized look "has the effect of diminishing the value of individuals who deviate from the norm" (Rankin & Borah, 2003, p. 2140). Social psychology researchers have "revealed that perceivers attribute more desirable personal qualities to attractive persons than to unattractive people" (Rankin & Borah, 2003, p. 2140). An adult's reaction towards people with stigmatizing characteristics is a "complex mixture of positive and negative responses" (Houston & Bull, 1994, p. 280). Houston and Bull noted that while "studies have assessed reactions to physically stigmatized people by means of interviews and questionnaires, few have involved observations of overt behavior" (p. 280). Negative reactions can lead to several negative consequences for those with facial disfigurement. These consequences include psychological, social, and emotional difficulties. Not only do discriminatory behaviors negatively affect the

psychological health of individuals with facial deformities, but these negative perceptions may contribute to social rejection and discrimination.

There are many theories about disfigurement; however there is little research that supports these theories (Grandfield, Thompson, & Turpin, 2005). Recreational therapists work closely with people who have a variety of illnesses, injuries, and disabilities. Many illnesses, injuries, and disabilities are linked with disfiguring scars due to the type of injury, or surgeries and other treatments. Research into the nature of perceptions towards disfigurement could have many benefits to recreational therapy patients and the general population. Grandfield et al. (2005) believe that "research with the general population to establish the nature of their attitudes to disfigurement could be an essential step towards helping people with disfiguring conditions, as it may facilitate the development of community and clinical interventions for those distressed by the negative reactions of others" (p. 823). Recreational therapists work in several different settings both inpatient and outpatient, with patients who have a variety of demographic backgrounds, thus the possibility of new interventions could greatly benefit recreational therapy services.

### *Problem Statement*

There are two general reactions of people with typical appearance to people with facial disfigurement: (a) negative attention (e.g., staring) and (b) avoidance of interaction (Lawrence, Fauerbach, Heinberg, et al., 2006; Lawrence et al., 2007; Spence, 2008). Staring is a common stigmatizing behavior reported by people with differences in physical appearance. Langer, Fiske, Taylor, and Chanowitz (1976) posited that staring is a form of "exploratory behavior" (p. 452) and that people stare at differences in appearance to "make them less novel" (p. 452). Langer et al. suggested that "strong proscriptive norms may prohibit staring when the novel

stimulus is another person. Therefore, while people do stare, they go to some lengths to cover it up" (p. 452). It is also important to point out that the more deviant from *normal* appearance a person is the more staring the person will provoke (Langer et al., 1976).

Despite the difficulties created by stigmatizing behaviors and negative reactions, there is little literature devoted exclusively to stigmatization due to facial disfigurement. Additionally, while there is research related to stigmatization of disability, little of this research has focused on the reactions of adults. Research into the stigmatization of people has demonstrated negative consequences such as: social withdrawal and avoidance, decreased self-esteem, negative body image, negative self-concept, aggression, drug and alcohol abuse, low mood, and overall decreased quality of life (Bernstein et al., 1992; Brown et al., 2008; Kent & Keohane, 2001). Negative perceptions of others toward people with visible disfigurement effects most aspects of life, including recreation pursuits and ability to work (Brown et al., 2008), however, there is little theory-based research examining connections between overt reactions (e.g., staring) and perceptions of people with facial disfigurement.

### *Purpose Statement*

The purpose of this study was to determine if there was a statistically significant relationship between staring (as measured by fixation time) and the following perceptions of people with facial disfigurement: (a) honesty; (b) employability; (c) intelligence; (d) trustworthiness; (e) attractiveness; (f) optimism; (g) effectiveness; and (h) capability.

### *Research Question*

1. Is there a statistically significant relationship between staring and perceptions (e.g., honesty, employability, intelligence, trustworthiness, attractiveness, optimism, effectiveness, and capability) of people with facial disfigurement?

### *Hypothesis*

Hypothesis 1: There will be negative correlations between starting (as measured by fixation time) and the following perceptions of people with facial disfigurement (as measured by the Facial Disfigurement Photograph Scale): (a) honesty; (b) employability; (c) intelligence; (d) trustworthiness; (e) attractiveness; (f) optimism; (g) effectiveness; (h) capability; and (i) popularity.

### *Limitations*

A primary limitation of this study was that a convenience sample of college students was used. Although college students are commonly-used in social science research due in part to convenience, their use may present limitations of generalizability of findings. College students are not be representational of the general population of the US in terms of age, socio-economic status, race, and education. As such, the findings of the current study are limited. Additionally, although based largely on the Digitally Altered Photograph Scale (Rankin & Borah, 2003), the Facial Disfigurement Photograph Scale was a researcher-designed instrument with unknown psychometric properties.

### *Assumptions*

For the purpose of this study it was assumed that all participants would answer questionnaires honestly, truthfully, and to the best of their abilities. Additionally, it was assumed that the Facial Disfigurement Photograph Scale would accurately measure perceptions of people with facial disfigurement.

### *Definitions of Terms*

Automatic Factors/Responses: instinctive, immediate, impulsive, or spontaneous reactions to a stigmatizing condition (Pryor, Reeder, Yeadon, and Hesson-McInnis, 2004)

Controlled Factors/Responses: thoughtful, deliberate, conscious reactions to a stigmatizing condition (Pryor, Reeder, Yeadon, and Hesson-McInnis, 2004).

Facial Disfigurement: a difference in appearance in the face caused by an injury or congenital defect. Ex: scarring due to laceration, burn, surgical operation, etc.; cleft pallet; birth mark; etc.

Fixation time: the amount of time spent staring as measured in seconds by eye-tracking equipment.

Stigma: "bodily signs designed to expose something unusual and bad about the moral status of the signifier" (Goffman, 1963, p. 11).

Stigmatizing Behaviors: Staring, pointing, avoiding, and making negative comments. Any dehumanizing behavior associated with a difference in appearance due to perceived differences (Lawrence, Fauerbach, Heinberg, Doctor, and Thombs, 2006).

The Dual-Process Model of Reactions to Perceived Stigma: a model that suggests that there are two psychological responses involved in reacting to stigmatizing conditions. One response is automatic, while the other is controlled (Pryor, Reeder, Yeadon, and Hesson-McInnis, 2004).

# Chapter II: Literature Review

## *Introduction to Facial Disfigurement*

The face is one of the most important parts of the human body because it is "the primary way one interacts with the rest of society...A person's identity is integrally bound to the appearance of the face" (Spence, 2008, p. 71). Facial deformities can create a variety of psychological, emotional, and social difficulties, yet the scope of these difficulties and ways to eleviate them have been sparsely examined.

## *Effects of Facial Disfigurement*

Brown, McKenna, Siddhi, McGrouther, and Bayat (2008) conducted a qualitative study of people with significant scars (N = 34) that included 10 men and 24 women aged 14-70. Most of the participants (n = 22, 64.7%) had scars of the face. Private one-to-one interviews were conducted, and participants were encouraged to speak openly about functional limitations, treatment, quality of life, home life, personal relationships, occupational difficulties, social life, leisure pursuits, emotional reactions and self confidence as related to their scars. Participant statements were classified into 19 themes covering five domains: (a) physical comfort and functioning, (b) acceptability to self and others, (c) social functioning, (d) confidence in the nature and management of the condition, and (e) emotional well-being.

Results indicated that 91% of the participants had issues with acceptability to self and others. Scars affected 82% of the participants social functioning. Emotional well-being was diminished in 76% of participants. A low level of confidence in the nature and management of their condition was reported by a little over one-quarter (29%) of the participants. Physical comfort and functioning affected 59% of the patients (Brown, et al., 2008).

### *Psychological Effects*

Facial scars can lead to increased anxiety and feelings of self-consciousness (Brown, et al., 2008). For many people, scarring has a significant influence on them psychologically. These psychological factors, according to Brown et al. (2008), are important to clinical practice.

Newell and Marks (2000) compared sub-scale scores of agoraphobia, social phobia, anxiety and depression from the Fear Questionnaire scores of 112 people with facial disfigurement, 66 people with agoraphobia, and 68 people with social phobia. Participants with facial disfigurement were similar to participants with social phobia in the incidence of agoraphobic traits such as social avoidance, anxiety, and depression. Thus, people with facial disfigurement may benefit from psychological treatment similar to treatment received by people with social phobias. These include cognitive-behavioral therapy and exposure therapy.

Bisson, Shepherd, and Dhutia (1997) studied adults with facial trauma in two phases. Phase one was a retrospective review of the medical charts of 47 adult patients with facial trauma, and phase two was a survey (Hospital Anxiety and Depression Scale and the Impact of Event Scale) of 43 adult patients with facial trauma who had recently undergone surgery. After reviewing the medical charts in phase one, Bisson et al. reported that (a) the physician comments about the psychological state of the patients were brief and (b) no patients were referred for treatment of psychological effects from their trauma even when they had negative mood states mentioned in their charts. Results of phase two indicated that a little over one quarter of the patients fulfilled the criteria for a diagnosis of Posttraumatic Stress Disorder as described in the *Diagnostic and Statistical Manual of Mental Disorders, 4th edition*.

Negative psychological effects of facial deformity may be compounded by other factors. Bisson et al. (1997) reported that in 28 of the 47 patient charts they reviewed, facial injuries were a result of assault. In phase two 27 of the 43 patients sustained their facial injuries as a result of

assault. Bisson et al. reported that the patients who had been injured as a result of assault had significantly higher Hospital Anxiety and Depression Scale scores than those who were injured in an accident.

Bisson et al.'s (1997) research suggests that psychological co-morbidity is present in patients with facial trauma. Their research also uncovered that psychological aspects of facial injury were not thoroughly assessed at the particular hospitals where charts were reviewed; the researchers suggest this could be a common oversight in healthcare. Bisson et al. recommend that brief psychological assessments should be routine and could be done by hospital staff regardless of psychological and psychiatric training. Bisson et al. noted, in particular, that incorporating routine psychological assessment into the treatment of patients with facial trauma could play a role in improving their care.

*Social Effects*

In terms of social interaction, disfiguring injuries, especially those to the face, are particularly difficult to overcome. Tebble, Thomas and Price (2004) suggested that the face holds psychological importance and that disfigurement has several possible social consequences.

In social relationships the face is the "symbol of or synonymous with the person" (Macgregor, 1990, p. 250). Because the face is so significant, any disfigurement that makes the face "ugly or unsightly" (Macgregor, 1990, p. 250) can become more important than any other trait the person may have making the disfigurement the most important aspect of the person (Macgregor, 1990).

Intimate relationships, particularly sexual relationships are often negatively affected by differences in appearance; however there are few studies into the effects of facial disfigurement on intimacy (Van Loey & Van Son, 2003). Aside from intimate relationships, everyday social

interactions can be negative experiences for people with facial disfigurement as well. Evidence suggest that people with facial disfigurement often avoid social interaction due to stigmatizing behaviors such as staring, questioning, and inappropriate or rude reactions.

Brown et al. (2008) noted that 53% of their participants felt their personal relationships suffered as a result of their scars, especially when interacting with the opposite sex. Participants (35%) reported that they "have a strong desire to be alone and avoid situations where they could be observed…" (Brown et al., 2008, p. 1052). Additionally, participants reported feeling that their work lives were affected. Many reported covering their scars while in the work place and feeling that their scars would keep them from advancing in their careers. The ability to communicate (e.g., maintaining eye contact, body language, gestures) also suffered due to feelings that people fixate on scars. Finally, leisure activities that involved exposing areas of the skin with scars were noted to be stressful.

*Emotional Effects*

Brown et al. (2008) found four themes concerning emotional well-being: low self confidence (50%), anxiety (21%), low mood and feelings of despair (50%), and anger, annoyance and frustration (26%). Brown et al. also found that many participants reported feeling unhappy about their scars and the fact that their scars will never completely go away.

Feelings of rejection are a serious emotional effect of facial disfigurement. Kent and Keohane (2001) studied people with psoriasis (N = 141) and found that psoriasis of the hands and face can present more frequent and distressing problems than psoriasis of other parts of the body that can be easily covered. In a similar study, Kent (1999) found that in general people were more likely to remember rejection from others when they believed their condition was stigmatizing. Kent and Keohane wrote that "positive experiences could make a difference not

only to the degree to which a person is disabled by their condition but also to more fundamental characteristics such as social anxiety and self-esteem" (p. 25). Kent and Keohane noted that positive experiences are not as well understood as negative experiences. Positive emotional experiences can help individuals with differences in appearance cope emotionally with their disfigurement.

*Summary*

People with facial disfigurement often withdraw from society, which could lead to an increased incidence of depression, anxiety, poor body image, and stigmatization (Brown et al., 2008; Bisson et al., 1997; Kent & Keohane, 2001; Newell & Marks, 2000). While scars may be the final step in the healing process of injured tissue, researchers (e.g., Brown et al., 2008) have suggested that people with scars have lasting social and emotional deficits that need to be addressed by health care professionals during hospitalization and after discharge in follow-up care.

## *Stigma*

Patients recovering from disfiguring injuries not only have to deal with adjustment to new physical appearance internally, they also have to deal with stigmatizing behaviors such as abnormal looks, staring, avoidance, pointing, whispering, questioning, commenting, teasing, bullying, discrimination, and overall rude behavior (Lawrence et al., 2007). Lawrence et al. (2007) noted that individuals receive cues regarding standards of appearance, importance of appearance, and tolerance of deviation from the standard. While some types of disfigurement are acceptable to our society as a whole, such as tattoos and piercing, other disfigurements and distinctions of appearance, such as scarring, are not considered socially acceptable. Because these disfigurements are not the social norm, people with these differences are often stigmatized.

Ancient Greeks coined the term *stigma* "to refer to bodily signs designed to expose something unusual and bad about the moral status of the signifier" (Goffman, 1963, p. 11). Erving Goffman, a sociologist who is well known for his research into stigma, identified three types of stigma: (a) "abominations of the body" which refers to physical deformities that can be seen, (b) "blemishes of individual character" referring to attributes that you can't see (e.g. beliefs, dishonesty, mental disorders, addictions, etc.), and (c) "tribal stigma of race, nation, and religion"(p. 14) which are traits that are passed on through lineage. Regardless of its source, stigmatization inhibits the social acceptance of affected individuals (Bernstein, O'Connell, Chedekel, 1992). In its most basic form, stigma is the result of the relationship between an attribute and a stereotype (Goffman, 1963).

Categories of people based on attributes that make them normal are established by society (Goffman, 1963). It is important to remember that not all attributes that are undesirable lead to stigma, it is only the attributes that are incongruent with the stereotype of what an individual should look like (Goffman, 1963). Ideals of physical appearance are pervasive due to popular media such as television and magazine. However family and peers can influence an individual's ideal of physical appearance as well. Lawrence et al. (2007) noted that while "numerous studies suggest that the general population not only makes positive assumptions about attractive people but also treats attractive people with more respect throughout their lives" (p. 370). People with disfigurement are often found "victim of a social process that defines them as deviant" (Lawrence, Fauerbach, Heinberg, et al., 2006, p. 106) thus making them the recipients of an assortment of stigmatizing behaviors.

There are few studies focused exclusively on stigmatization due to disfigurement (Lawrence et al., 2007; Lawrence Fauerbach, Heinberg et al., 2006). Additionally, no validated

measures of stigmatization for people with differences in appearance appear in the literature (Lawrence, Fauerbach, Heinberg et al., 2006). Porter and Beuf (1991), conducted a study of people with vitiligo, a disease that effects skin pigmentation, where a vitiligo specific measure of perceived stigmatization was created. Results suggested that stigmatization has a negative effect on self-esteem (Porter & Beuf, 1991).

Education is an important tool for health care providers who treat people with facial disfigurement. Helping the patient understand that their change in physical appearance does not change the person they are on the inside can help them cope with stigmatization. Brown et al. (2008) noted that "public education may also lessen stigma associated with scars and reduce negative self-perception of newly scarred patients" (p. 1057). Educating the patient's family and friends can greatly lessen the level of stigma and make for a better transition from inpatient hospitalization to the rest of the world.

### *Physiological Measurements*

Psychophysiology as is the study of physiological responses (e.g., muscle tension, sweating, peripheral vasoconstriction, heart rate variability, blood pressure, pupil size) (Bauer, 1998). Many studies on emotion use physiologic responses (Bauer, 1998) as representations of inner emotional states.

#### *Eye Tracking*

While examining a scene, visual information is acquired from a small region that surrounds the center of gaze called the fovea (Henderson, 2003). The highest quality of visual information is gained from the fovea, and is reduced moving away from the fovea to the surrounding area (Henderson, 2003). Humans move their eyes roughly three times per second through a process called rapid eye movements or saccades (Henderson, 2003). Saccades are

used to reposition the fovea throughout a scene in order to examine the entirety of it (Henderson, 2003). Saccades are very short in duration, accounting for approximately 10-20% of scanning time (Manor & Gordon, 2003). Visual information is only gained during fixations, which are periods of gaze stability where the fovea is focused on one particular aspect of the scene (Henderson, 2003); this relatively stationary period lasts for roughly a few hundred milliseconds and accounts for more than 80% of scanning time (Manor & Gordon, 2003).

Henderson (2003) identified three main reasons why gaze control is important in scene recognition. First, Henderson noted that vision is an active process where the viewer continuously seeks out information. Humans control their gaze by moving their eyes, head and body in order to gain high quality visual information. Next, eye movements allow researchers to gain information about attentional system of the viewer. Attention plays an important role in visual and cognitive processing "because eye movements are an overt behavioral manifestation of the allocation of attention in a scene" (Henderson, 2003, p. 498). Lastly, tracking eye movements provides the researcher with an "unobtrusive, sensitive, real-time behavioral index of ongoing visual and cognitive processing" (Henderson, 2003, p. 498). Tracking eye movements allows the researcher to identify a scan path by connecting fixations, thus allowing them to follow the viewer's path of attention throughout a scene (Manor & Gordon, 2003).

*Fixations*

There are two important aspects of fixations during scene perception: (a) fixation position, where a fixation is directed; and (b) fixation duration, how long a fixation lasts (Henderson, 2003). Fixations occur on interesting or informative regions of a scene (Henderson, 2003); this is because the human visual system has a "limited capacity" thus "selection must occur to prioritize important stimuli while ignoring less important ones" (Devue, Van der

Stigchel, Bredart, Theeuwes, 2009, p 114). The distribution of attention across a scene is a combination of fixation position weighted by fixation duration; this is because "the distribution of processing time across a scene is a function of both the spatial distribution of fixations and the duration of those fixations" (Henderson, 2003, p. 502). Although there is variability within individuals and between individuals, the average fixation duration while viewing a scene is approximately 330 ms (Henderson, 2003). The variability in fixation duration is affected by visual and cognitive factors dealing with the fixation region (e.g. scene luminance, contrast, color, scene movement, etc.) (Henderson, 2003).

Ishii, Carey, Byrne, Zee, and Ishii (2009) used eye tracking to measure attentional bias toward peripheral facial deformities and reported that that there was a statistically significant difference in fixation times between normal faces and abnormal faces and concluded that observers "typically focus their attention on discriminating features" (p. 459). Thus, using eye tracking allows researchers to "quantify the extent to which observers redirect their attention" (p. 463) when a deformity is present. While staring in and of itself appears to indicate a form of stigmatization of those with facial deformities, the behavior may be reflective of biases that could lead to discriminatory behaviors.

*Summary*

Tracking eye movement allows the researcher to gain insight into where the viewer's attention lies in a scene (Henderson, 2003). "The use of eye-movement registration allows for a deeper inspection of the time course and to continuously measure the deployment of attention" (Gerdes, Pauli, and Alpers, 2008, p. 2). Eye tracking is an unobtrusive way to gain knowledge of not only what captures the viewer's attention, but also what holds it as measured in fixations.

## *Social Interaction*

Researchers (e.g. Kent, 1999; Kent & Keohane, 2001; Macgregor, 1990; Porter & Beuf, 1991) have demonstrated that difference in appearance can cause unwanted negative attention. For people with facial disfigurement, this negative attention is associated with negative social interactions with others of typical appearance. Macgregor (1990) reported that in studies of people with facial deformities, social interaction is the root of most participants' complaints and difficulties. Macgregor concluded that people with facial disfigurement are "distressed each day by the reflection in their own mirrors, as much if not more hurtful and damaging to their self-image and self-esteem is seeing their own flawed faces reflected in the reactive behavior of the nondisfigured" (p. 249). It is this experience that can make even the most ordinary of activities or tasks difficult for people with a difference in appearance.

Social interaction is a basic human need; however, privacy is also a basic human need (Macgregor, 1990). Establishing and maintaining positive social interactions is a problem for people with facial disfigurement (Macgregor, 1990). Spence (2008), a reconstructive surgeon, wrote that "when children see a person with facial deformity, they will often cry, and adults will move to another seat in the bus" (p. 71). People with facial disfigurement often use many coping strategies to help themselves blend into society. These strategies range from reconstructive surgery, purposely making themselves the subject of jokes, avoiding interaction, apologize for their looks, and exploiting themselves by telling their story when not provoked (Macgregor, 1990).

Aside from stigmatizing behaviors that give extra attention to those with facial disfigurement, avoidance is a large aspect of being stigmatized. Houston and Bull (1994) wrote that "many people find it hard to admit (both to themselves and to others) that they do submit visibly disfigured individuals to any sort of avoidance" (p. 280). Avoidance can come in several

forms from avoiding eye contact, conversation, or being within close proximity to the person at all.

Space between people varies depending on the type of interaction. "For example, when engaged in conversation friends may stand closer to each other than strangers, but the distance between the former will be greater than that between lovers and less than that between business acquaintances" (Macgregor, 1990, p. 250). Houston and Bull (1994) studied the effects of facial appearance on seat occupancy on a public train. A subject was made to appear to have one of four different facial appearances via make-up: (a) her natural face, (b) a port-wine stain around one eye, (c) a scar down her forehead and nose ending below her eye, or (d) a bruise around one eye (Houston & Bull, 1994). Two observers took note of when people sat in one of the three seats on either side of the subject (Houston & Bull, 1994). Results of this study revealed that people were less likely to sit in one of the three seats on either side of the subject when they had a port-wine stain than any of the other appearances (Houston & Bull, 1994). An analysis of variance (ANOVA) revealed a significant relationship ($p = .004$) between the facial appearance of a person and how close another person would sit next to them; however a post hoc analysis found this only in normal versus port-wine stain (Houston & Bull, 1994). Houston and Bull concluded that the findings of their study support the theory that permanent facial disfigurement leads to frequent avoidance behaviors more than other facial disfigurement that can be seen as temporary. The results of Houston and Bull's study support the idea that permanent disfigurement has an effect on distance between people with and without facial disfigurement.

### *Perceptions of Facial Disfigurement*

Much of the research on facial disfigurement is from the perspective of the person with a facial disfigurement (Houston & Bull, 1994). Due to the number of stigmatizing behaviors

people with facial disfigurement are forced to deal with, it is "important to investigate the attitudes towards disfigurement present in society. However, the disfigurement literature has thus far largely neglected to investigate this area…" (Grandfield, Thompson, Turpin, 2005, p. 822). Although there are many theories about disfigurement there is little research that supports these theories (Grandfield et al., 2005). Grandfield et al. (2005) noted that researching the nature of attitudes towards disfigurement within the general population "could be an essential step towards helping people with disfiguring conditions…" (p. 823), because it could be a stepping stone to developing community and clinical interventions to aid those with disfigurement struggling with negative reactions from others.

Rankin and Borah (2003) conducted a study (N = 210) where participants viewed photos of people with facial disfigurement and photos of the same people where their facial disfigurement was digitally removed to make them appear as if they had no facial disfigurement. Participants were asked to rank these photos on a seven-point scale as to how honest, employable, intelligent, trustworthy, attractive, optimistic, effective, popular, and capable they perceived the person to be. The data confirmed their hypothesis that people discriminate against those with facial disfigurement, solely on the basis of appearance. Rankin and Borah reported significant negative perceptions of people with facial deformities among participants ranging in age from 18-76 years and from a variety of demographic backgrounds. Specifically, participants rated the majority of the photographs which were digitally altered to remove facial deformities significantly higher than the unaltered photographs in trustworthiness, attractiveness, employability, intelligence, optimism, honesty, effectiveness, and capability.

An adult's reaction towards persons with stigmatizing characteristics is a "complex mixture of positive and negative responses" (Houston & Bull, 1994, p. 280). Houston and Bull

(1994) noted that while "studies have assessed reactions to physically stigmatized persons by means of interviews and questionnaires, few have involved observations of overt behavior" (p. 280). Houston and Bull note that "adults may be socialized to be kind and compassionate to physically disadvantaged persons" (p. 280). This socialization may lead to an incongruence in verbal and actual behaviors; meaning that verbal attitudes may be positive while actual behaviors may be negative.

Grandfield et al. (2005) studied attitudes towards varying skin conditions (e.g., acne, eczema, port-wine stain) by using 14 pictures of female faces, half with varying skin conditions and half with no skin conditions. Participants were students and employees from the University of Sheffield (N = 64), ranging in age from 18-58. Participants first took the Implicit Association Test (IAT) to measure implicit reactions. The IAT tests "relative strengths of associations between concepts to be measured so that the researcher is able to see if one concept is perceived more positively than another concept. The IAT requires participants to categorize two target categories (e.g. flowers and insects) and two attribute categories (e.g. pleasant and unpleasant)" (Grandfield et al., 2005, p. 822). Second, the participants used a rating scale -100 (extremely negative) to 100 (extremely positive) to rate the photos. Grandfield et al. found that the implicit attitudes of participants were more positive in relation to clear skin, and that explicit attitudes revealed a preference toward clear skin or no preference at all.

Brown et al. (2008) found, in their study, that 56% of their participants "felt stigmatized by their scars and believed that others would judge them as being criminally inclined or think that the scars had been deliberately inflicted suggesting they were weak-willed or 'weird'" (p. 1051). According to MacLin and MacLin's 2004 study "faces rated high in criminality are also likely to be rated as unattractive" (p. 146). The idea that criminals have a difference in

appearance is not uncommon; there have been multiple studies on physical appearance and criminality (e.g. Bull, 1982; MacLin & MacLin, 2004).

Physical attractiveness has some of the most consistent findings within perception research (Gillen, 1981). Physical attractiveness falls within the "what-is-beautiful-is-good phenomenon" (Gillen, 1981, p. 277); this phenomenon states that highly attractive persons are perceived as having positive traits while those with low physical attractiveness have less positive traits (Gillen, 1981; Gross & Crofton, 1977; van Leeuwen & Macrae, 2004).

Bull (1982) refers to unpublished research he did with Rumsey and Gahagan, in which they attempted to assess at what age an observer becomes influenced by facial deformity. Before and after photographs of adults with mild facial deformity undergoing oral surgery were shown to children ranging from 5-12 years old. The children were asked to pick one face in response to positive ("imagine some new teachers came to your school; which one would help you a lot?") and negative ("'which one would get cross with you?'") questions (Bull, 1982 p. 278). In this unpublished work, Bull, Rumsey, and Gahagan found that "by the age of 12 years the children almost always picked out an 'after' operation photograph in response to a 'positive' question and a 'before' photograph in response to a 'negative' question" (Bull, 1982 p. 278). Results showed that 12 years of age marked statistically significant positive and negative responses, suggesting that children do not have the same negative reactions to persons with facial disfigurement as adults do (Bull, 1982).

### *Summary*

Despite the most advanced medical, surgical and reconstructive procedures, patients with facial injuries are often left with a life-long abnormal appearance (Lawrence, Fauerbach, Heinberg et al., 2006). Stigmatization can result in a lack of self-esteem, and many unpleasant

social experiences. These negative experiences can have lifelong psychological effects on the individual and increase issues with body image (Lawrence, Fauerbach, Heinberg et al.). Stigmatizing attitudes and perceptions can have traumatic effects on people with facial disfigurement.

# Chapter III: Methodology

People with facial disfigurement frequently experience stigmatization due to differences in their appearance (Lawrence, Rosenberg, & Fauerbach, 2007). There are few studies that examine the effects stigmatizing behavior directed towards people with differences in appearance (Brown, McKenna, Siddhi, McGrouther, & Bayat, 2008; Kent & Keohane, 2001) and even fewer that exclusively examine stigmatizing behavior directed towards people with facial disfigurement (Lawrence, Fauerbach, Heinberg, Doctor, & Thombs, 2006; Lawrence, Fauerbach & Thombs, 2006; Newell & Marks, 2000; Spence 2008; Tebble, Thomas, & Price, 2004). Most research in the area of disfigurement and stigmatization is qualitative from the point of view of the person with the disfigurement (Bernstein, O'Connell, & Chedekel, 1992; Brown et al., 2008; Magin, Adams, Heading, Pond, & Smith, 2007). Staring is one of the most common stigmatizing behaviors reported by people with differences in physical appearance. It is important to point out that the more deviant from *normal* appearance a person is the more staring the person will provoke (Langer, Fiske, Taylor, and Chanowitz, 1976). Negative reactions (such as staring) can lead to several negative consequences for those with facial disfigurement. These consequences include psychological, social, and emotional difficulties (Brown et al., 2008; Kent & Keohane, 2001; Newell & Marks, 2000).

## *Population and Sample*

Participants were a convenience sample of undergraduate college students enrolled in courses in the College of Health and Human Performance at East Carolina University. The principal investigator announced to the class that there was an opportunity for them to participate in a research study measuring non-invasive physiological data. Students were told that they would be fitted with head gear that would collect physiological data as they looked at a series of

photos on a computer screen and that they would answer a short questionnaire. Students were offered extra credit in their course for participation in this study; however, there was an alternate extra credit option offered by the instructor of record for students who did not wish to participate in the study. An alternate extra credit opportunity was used to ensure that students did not feel coerced into participating in the current study. The option to participate was open to all students in the courses selected from the College of Health and Human Performance with the exception of those who were under 18 years of age. Students under the age of 18 were not be able to participate because they would require parental consent to participate; being at a university the ability to obtain parental consent may have been limited.

As of 2008, East Carolina University had an approximate enrollment of 27,000 students (East Carolina University, n.d.). From 2004-2005, students at this university were: 59% female, 79% Caucasian, and 15% were from out of state (East Carolina University, n.d.). The projected sample size for this study was 50 participants.

### *Data Collection Procedures*

The principal investigator collected data on each participant individually in a visual motor laboratory located at the study site. Approval to use this laboratory and its equipment was obtained from the laboratory director, who trained the principal investigator in the use of the eye tracking equipment. Participants were not told that they would be viewing photos of people with facial disfigurement. Rather, participants were told only that they would be viewing several photos of different people. Withholding this information was necessary to discourage participants from being aware of and controlling their gazes.

One participant at a time was fitted with an Applied Sciences Laboratories (ASL, Watham, MA) 6000 SU eye movement system with Eyehead Integration Software and

GazeTracker. This is a video-based monocular corneal reflection system that accurately measures line of gaze with respect to orientation of the head. To do this, participants were asked to sit in a chair. Head gear was placed on their head and adjusted to fit them appropriately and comfortably. At this point participants were told that they would view a series of screens. They were told that they would be shown three types of screens: (a) photo screens with a variety of photos of people which they can look at freely (see figure 3.1), (b) white calibration screens with a crosshairs in the center on which they should focus their gazes (see figure 3.2), and (c) a *jumbled mask* (a screen of many photographs overlapped that is used to distract the participants between testing screens and calibration screens, see figure 3.3).

**Figure 3.1 Photo Screen**

**Figure 3.2 Calibration Screen**

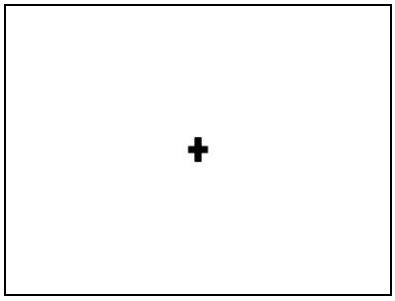
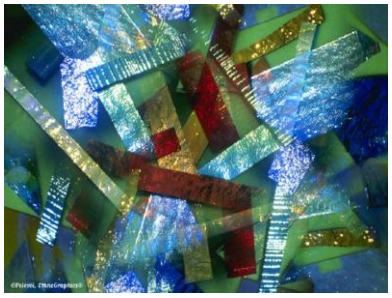


**Figure 3.3 Jumbled Mask**



Following procedural guidelines of Ishii, Carey, Byrne, Zee, and Ishii (2009), calibration screens were viewed for 3 seconds. Ishii et al. used single photos and allowed participants to view them for 10 seconds. Because more than one photo appeared on the screen at one time

participants in this study viewed photo screens for 20 seconds. A jumbled mask was viewed for another 3 seconds. Participants viewed screens in a specific order: (a) calibration screen, (b) testing screen consisting of an arrangement of four photos (three headshots of average people and one headshot of a person with a facial disfigurement used as a target photo), and (c) jumbled mask. This cycle repeated itself three times, each with different headshots. A calibration screen ensured the position of the participant's eyes when the testing screens appeared. The target photo, photo of a person with facial disfigurement, on the testing screens was randomly assigned as to not be in the same location on each testing screen. Eye gaze was measured in terms of the amount of seconds that each participant spent viewing each face on the testing screens. Following collection of physiological data, equipment was removed from the participants. The principal investigator then left the room so that the participants could complete the Facial Disfigurement Photograph Scale (FDPS) in private. The questionnaire was administered following physiological data collection to reduce the likelihood of participants controlling their gazes during physiological testing.

The questionnaire was a reconstruction of Rankin and Borah (2003) Digitally Altered Photograph Scale and was referred to as The Facial Disfigurement Photograph Scale (FDPS). The FDPS used each of the photographs that were used during eye tracking; meaning, both photos of people with facial disfigurement and photos of people without were used. Each photograph appeared individually on the screen followed by a seven-point Likert-type scale of questions asking participants to evaluate each person in the photograph on the perceptions used by Rankin and Borah: honesty, employability, intelligence, trustworthiness, attractiveness, optimism, effectiveness, popularity, and capability.

A pilot test of these procedures was conducted using student volunteers (N = 4) from the same university prior to the beginning of data collection. Pilot testing was done in order to ensure that the above procedures were appropriate.

*Instrumentation*

Eye-tracking followed procedural guidelines similar to that of Ishii et al. (2009). The only procedural difference in eye-tracking in this study and that of Ishii et al. was the method of viewing photos. Ishii et al. showed participants' one photo at a time on a 17-inch LCD monitor. In this study, participants viewed four photos at a time on a 17-inch LCD monitor to help determine whether participants spent more time staring at faces with deformities than faces without. One photo was a target photo, which was be a photo of a person with a facial disfigurement, while the others were matched according to race, sex, and general physical traits with the photos of those with facial disfigurement. The FDPS was administered following procedural guidelines similar to that of Rankin and Borah (2003). There were several differences between the FDPS and the scale developed by Rankin and Borah. For instance, Rankin and Borah used photos that were digitally altered because they used both the same faces for typical and disfigured appearance. Because the principal investigator of the current study had access to people with and without facial disfigurement who were willing to pose for photographs for the FDPS, the photos of the FDPS were not digitally altered. Three volunteers with facial disfigurement gave consent to allow their photos to be used for this study. Photos of people without facial disfigurement in the FDPS came from volunteers who gave concent as well. Additionally, there were fewer photos used in the FDPS scale than in the Rankin and Borah scale because the same photos were used for eye-tracking data collection as for the FDPS. Next, there was only one version of the FDPS, whereas Rankin and Borah used several versions within the

same study. Rankin and Borah's decision to use several versions of their scale was unexplained in their paper, and the use of multiple versions appeared to be an unnecessary complication that might affect the internal validity of the current study. The last key difference is that the FDPS was electronic while Rankin and Borah's scale was a pen-and-paper questionnaire.

### *Variables*

The key variables in the study were staring as measured by fixation time and perceptions as measured by the FDPS. Perceptions included: (a) honesty, (b) employability, (c) intelligence, (d) trustworthiness, (e) attractiveness, (f) optimism, (g) effectiveness, (h) capability, and (i) popularity.

### *Analysis*

Data were analyzed using Pearson's R correlation to determine if there were significant relationships between staring (as measured by eye-tracking software) and perceptions of people with facial disfigurement (as measured by the FDPS). Additionally, a paired samples t-test was used to compare fixation times of photos of people with facial disfigurement and photos of people without facial disfigurement to determine whether there were significant differences between the amount of time in seconds spent staring at the two types of photos.

# Chapter IV: Results

A convenience sample of college students registered in courses within the College of Health and Human Performance at East Carolina University was used to examine relationships between stigmatizing behavior and perceptions toward people with facial disfigurement. Stigmatizing behavior was operationalized as staring and was measured using eye-tracking equipment and software while participants were shown photographs of people with and without facial disfigurement. Perceptions toward people with facial disfigurement were measured using the Facial Disfigurement Photograph Scale administered immediately after the eye-tracking data was collected.

The target number of participants was 50, but despite recruitment in more classes than originally planned, only 39 students agreed to participate. Of those, six were removed from the dataset due to technical difficulties (e.g., miscalibration of the equipment) which resulted in a sample of 33.

## *Demographic Data*

Participants in the final dataset included 21 male and 12 female participants. Age of participants ranged from 18-27 years old. Self-reported race of participants included White (69.7%), African American (18.2%), Hispanic (6.1%), Native American (3%), and 3% who preferred not to answer.

**Table 1**

***Participant Race***

| **Race** | Frequency | Percent |
|---|---|---|
| White | 23 | 69.7 |
| African American | 6 | 18.2 |
| Hispanic | 2 | 6.1 |
| Native American | 1 | 3 |
| Prefer not to answer | 1 | 3 |

**Table 2**

***Participant Sex***

| **Sex** | Frequency | Percent |
|---|---|---|
| **Male** | 21 | 63.6 |
| **Female** | 12 | 36.4 |

**Table 3**

***Participant Age***

| **Age** | Frequency | Percent |
|---|---|---|
| **18** | 6 | 18.2 |
| **19** | 9 | 27.3 |
| **20** | 6 | 18.2 |
| **21** | 5 | 15.2 |
| **22** | 3 | 9.1 |
| **23** | 1 | 3 |
| **24** | 1 | 3 |
| **25** | 1 | 3 |
| **27** | 1 | 3 |

## *Results*

The primary research question in this study was to determine if there were statistically significant relationships between staring and perceptions of people with facial disfigurement. A Pearson's R correlation was used to determine if there were significant relationships between staring and perceptions. Staring was measured using eye tracking equipment and software, which recorded the number of seconds participants spent looking at each photo. Perceptions measured by the Facial Disfigurement Photograph Scale (FDPS) included honesty, employability, intelligence, trustworthiness, attractiveness, optimism, effectiveness, and capability.

Data analysis indicated that there was a significant relationship only between staring at photographs of people with facial disfigurement and perception of capability of people with

facial disfigurement ($r = .370$, $p < .05$). No significant relationships were detected between staring at people with facial disfigurement and ratings of honesty, employability, intelligence, trustworthiness, attractiveness, optimism, and effectiveness of people with facial disfigurement.

Analysis of the relationship between staring and photographs of people without facial disfigurement indicated that there was a significant relationship between staring and perceptions of intelligence ($r = .352$, $p < .05$), optimism ($r = .455$, $p < .01$), effectiveness ($r = .350$, $p < .05$), and capability ($r = .357$, $p < .05$). No significant relationships were detected between staring at people without facial disfigurement and ratings of honesty, employability, trustworthiness, attractiveness, and popular.

Data analysis indicated that all significant relationship between staring and perceptions of both people with facial disfigurement (capability) and without facial disfigurement (intelligence, optimism, effectiveness, and capability) were positive correlations. In other words, generally, the longer someone stared at a person the higher they rated them. Overall, length of time spent staring was associated with more favorable ratings, leading to a positive correlation between staring and perceptions rather than the hypothesized negative correlation.

**Table 4**

***Staring and Perceptions of People with and without Facial Disfigurement***

| | *Facial Disfigurement* | | *Non Facial Disfigurement* | |
|---|---|---|---|---|
| **Perception** | *r* | *p* | *r* | *p* |
| **Honesty** | .208 | .246 | .229 | .200 |
| **Employability** | .080 | .659 | .284 | .108 |
| **Intelligence** | .057 | .752 | .362 | .038* |
| **Trustworthy** | .237 | .184 | .341 | .052 |
| **Attractive** | .105 | .561 | .013 | .941 |
| **Optimistic** | -.045 | .799 | .466 | .005** |
| **Effective** | .279 | .116 | .350 | .045* |
| **Popular** | .145 | .422 | .154 | .391 |
| **Capable** | .370 | .034* | .367 | .035* |

*Correlation is significant at the .05 level
**Correlation is significant at the .01 level

A paired samples t-test was conducted to compare the mean time spent staring at people with facial disfigurement and people without facial disfigurement. There was a significant difference in time spent starting at people with facial disfigurement (M = 3.2, SD = 1.7) and the time spent staring at people without facial disfigurement (M = 2.7, SD = 1.3); t = -2.25, $p < .05$. These results suggest that a person with a facial disfigurement will be stared at longer than a person without a facial disfigurement.

Several additional paired samples t-tests were conducted to compare the mean scores of perceptions toward people with facial disfigurement and people without facial disfigurement as measured by the FDPS. Significance differences ($p < .05$) were found between perceptions of

people with and without disfigurement on the characteristics of capability, popularity, optimism, attractiveness, trustworthiness, intelligence, and employability. There were no significant differences found in perceptions of effectiveness or honesty. Means and standard deviations of FDPS scores for people with facial disfigurement and people without facial disfigurement varied. While the differences in means were not consistent between each perception, each of the mean scores for people with facial disfigurement was lower than those of people without facial disfigurement. Mean scores for people with facial disfigurement were as follows: capability M = 4.7, SD = 1.1; popularity M = 3.6, SD = .84; optimism M = 3.9, SD = 1.1; attractiveness M = 1.9, SD = .94; intelligence M = 4.4, SD = .95; employability M = 4.1, SD = 1.1; trustworthy M = 4.5, SD = 1.0; effectiveness M = 4.2, SD = 1.1; honesty M = 4.7, SD = 1.1 (see table 5). Mean scores for people without facial disfigurement were as follows: capability M = 5.4, SD = .92; popularity M = 4.5, SD = .58; optimism M = 4.7, SD = .81; attractiveness M = 3.4, SD = 1.1; intelligence M = 5.0, SD = .76; employability M = 5.4, SD = .89; trustworthy M = 4.8, SD = .85; effectiveness M = 4.4, SD = .79; honesty M = 4.8, SD = .87 (see table 5).

**Table 5**

***Comparison of Mean FDPS Scores of Facial Disfigurement vs. Non Facial Disfigurement***

| **Perception** | Facial Disfigurement | Non Facial Disfigurement | | |
|---|---|---|---|---|
| | M (SD) | M (SD) | t | *p* |
| **Honesty** | 4.7 (1.1) | 5.4 (.92) | 5.56 | .000 |
| **Employability** | 3.6 (.84) | 4.5 (.58) | 6.40 | .000 |
| **Intelligence** | 3.9 (1.1) | 4.7 (.81) | 4.29 | .000 |
| **Trustworthy** | 1.9 (.94) | 3.4 (1.1) | 9.34 | .000 |
| **Attractive** | 4.4 (.95) | 5.0 (.76) | 5.30 | .000 |
| **Optimistic** | 4.1 (1.1) | 5.4 (.89) | 7.00 | .000 |
| **Effective** | 4.5 (1.0) | 4.8 (.85) | 2.87 | .007 |
| **Popular** | 4.2 (1.1) | 4.4 (.79) | 1.18 | .249 |
| **Capable** | 4.7 (1.1) | 4.8 (.87) | .59 | .557 |

*Note.* Level of significance = .05

# Chapter V: Discussion

## *Summary of Study*

Due to differences in appearance, people with facial disfigurement are often stigmatized (Lawrence, Rosenberg, & Fauerbach, 2007). Stigmatizing behaviors such as staring and negative perceptions can have harmful psychological, emotional, and social effects on people with facial disfigurement (Brown, McKenna, Siddhi, McGrouther, & Bayat, 2008; Lawrence, Fauerbach, Heinberg, Doctor, & Thombs, 2006). Although stigmatization can negatively affect people with facial disfigurement, there are few studies that examine the effects stigmatizing behaviors directed towards people with differences in appearance (Brown et al., 2008; Kent & Keohane, 2001) and even fewer that exclusively examine stigmatizing behavior directed towards people with facial disfigurement (Lawrence, Fauerbach, Heinberg, et al., 2006; Lawrence, Fauerbach & Thombs, 2006; Newell & Marks, 2000; Spence 2008; Tebble, Thomas, & Price, 2004). The negative effects of facial disfigurement on social functioning have been "poorly documented in the scientific literature" (Rankin & Borah, 2003, p. 2140). Entertainment media primarily feature young, attractive people, creating an "idealized look" (Rankin & Borah, p. 2140). This idealized look "has the effect of diminishing the value of individuals who deviate from the norm" (Rankin & Borah, p. 2140). Yet there is little in the literature connecting stigmatizing behaviors (e.g., staring) to perception of people with facial disfigurement. Thus, the purpose of this study was to determine if there were statistically significant relationships between staring (as measured by fixation time) and the following perceptions of people with facial disfigurement: (a) honesty, (b) employability, (c) intelligence, (d) trustworthiness, (e) attractiveness, (f) optimism, (g) effectiveness, (h) capability, and (i) popularity.

Pryor, Reeder, Yeadon, and Hesson-McInnis (2004) proposed the Dual-Process Model of Reactions to Perceived Stigma as a way to explain the reaction of people to differences. The authors posited that stigmatizing perceptions and attitudes of people are both automatic (or reflexive) and controlled (or planned). Automatic and reflexive factors are immediate and impulsive reactions, while controlled and planned factors are thoughtful or deliberate reactions to stigmatizing conditions. Pryor et al. used their model to explain the contradiction between the verbal reports and nonverbal behaviors of participants without disabilities while interacting with someone with a disability. Several dual-process models have been created by social psychologists to investigate psychological processes which have both automatic and controlled responses. The Pryor et al. model was used as a framework to construct the current study's hypotheses.

A convenience sample of college students registered in courses within the College of Health and Human Performance at East Carolina University was used. Stigmatizing behavior was operationalized as staring and was measured using eye-tracking equipment and software while participants were shown photographs of people with and without facial disfigurement. Perceptions of people with facial disfigurement were measured using the Facial Disfigurement Photograph Scale (FDPS), administered immediately after the eye-tracking data were collected.

### *Summary of Major Findings*

Data analysis indicated that there was only a significant relationship between staring at photographs of people with facial disfigurement and perception of capability ($r = .370$, $p < .05$). No significant relationships were detected between staring at people with facial disfigurement and ratings of honesty, employability, intelligence, trustworthiness, attractiveness, optimism, popularity, and effectiveness of people with facial disfigurement. However, analysis of the

relationship between staring and photographs of people without facial disfigurement indicated that there were significant relationships between staring and perceptions of intelligence ($r = .352$, $p < .05$), optimism ($r = .455$, $p < .01$), effectiveness ($r = .350$, $p < .05$), and capability ($r = .357$, $p < .05$). There were no significant relationships detected between staring at people without facial disfigurement and ratings of honesty, employability, trustworthiness, attractiveness, and popularity.

Paired samples t-tests were conducted to compare the mean scores of perceptions toward people with facial disfigurement and people without facial disfigurement as measured by the FDPS. Significance differences ($p < .05$) were found between perceptions of capability, popularity, optimism, attractiveness, trustworthiness, intelligence, and employability of people with and without disfigurement. There was no significant relationship between perceptions of effectiveness or honesty of people with and without facial disfigurement. Means and standard deviations of FDPS scores for people with facial disfigurement and people without facial disfigurement varied. The differences in means were not consistent between each perception, however, each of the mean scores for people with facial disfigurement (capability M = 4.7, SD = 1.1; popularity M = 3.6, SD = .84; optimism M = 3.9, SD = 1.1; attractiveness M = 1.9, SD = .94; intelligence M = 4.4, SD = .95; employability M = 4.1, SD = 1.1; trustworthy M = 4.5, SD = 1.0; effectiveness M = 4.2, SD = 1.1; honesty M = 4.7, SD = 1.1) were lower than those of people without facial disfigurement (capability M = 5.4, SD = .92; popularity M = 4.5, SD = .58; optimism M = 4.7, SD = .81; attractiveness M = 3.4, SD = 1.1; intelligence M = 5.0, SD = .76; employability M = 5.4, SD = .89; trustworthy M = 4.8, SD = .85; effectiveness M = 4.4, SD = .79; honesty M = 4.8, SD = .87).

A paired samples t-test revealed that there was a significant difference in time spent staring at people with facial disfigurement ($M = 3.2$, $SD = 1.7$) and the time spent staring at people without facial disfigurement ($M = 2.7$, $SD = 1.3$); $t = -2.25$, $p < .05$. These results suggest that a person with a facial disfigurement will be stared at longer than a person without a facial disfigurement and that perceptions of people with facial disfigurement are generally lower than perceptions of people without facial disfigurement. While people with facial disfigurement are stared at longer and rated lower, the results did not support a relationship between staring and negative perceptions of people with facial disfigurement.

## *Implications*

Results of this study indicate that people have generally less positive perceptions of people with facial disfigurement than people without facial disfigurement. Additionally, people stare at people with facial disfigurement longer than they stare at people without facial disfigurement. These findings support the findings of Brown, McKenna, Siddhi, McGrouther, and Bayat (2008), who reported that people with facial disfigurement feel that others think negatively of them; as well as other researchers who have reported that people with facial disfigurement are the recipients of stigmatizing behaviors (Kent and Keohane 2001; Van Loey & Van Son, 2003; Bisson, Shepherd, and Dhutia 1997; Newell & Marks, 2000; Lawrence, Fauerbach, Heinberg, Doctor, Thombs, 2006; Lawrence, Rosenberg, & Fauerbach, 2007).

### *Implications Related to Perceptions*

The *what-is-beautiful-is-good* phenomenon (Gillen, 1981) is one way to explain the negative perception of people with facial disfigurement in comparison to their non-disfigured counterparts. People who are physically attractive are generally perceived as possessing more positive traits than those who are less physically attractive (Gillen, 1981). Gross and Crofton

(1977) suggested that "variations in physical beauty affect judgments of personality traits" (p. 86). While many have pointed to the prevalence of stereotypically attractive people in electronic media to explain positive perceptions of beauty, people have associated attractiveness with positive traits for centuries (Van Leeuwen & Macrae, 2004). Van Leeuwen and Macrae (2004) theorized people may be hard-wired to associate beautiful with goodness and may not be aware that, often, their perceptions of a person's character are based largely on physical attractiveness.

Gross and Crofton (1977) suggested that the relationship between beauty and goodness is bi-directional. The first relationship is the most common and is described by beauty leading to perception of goodness. The second, and opposite, relationship can be described by "the more we like and value people, the more physically attractive they appear to us" (p. 86). Positive exposure could be one way to manipulate the second relationship (Dattilo, 2002). Positive exposure to people with facial disfigurement could allow for people to find value and characteristics they like about individuals with facial disfigurement, thus making their perceptions of them more positive.

Zajonc (2001) explained repeated-exposure paradigm as "making a stimulus accessible to the individual's sensory receptors" (p. 224) to create a preference for an object. Zajonc suggested that there is "no cognitive mediation, rational or otherwise" (p. 224) involved in the process. Therefore, lack of exposure to people with facial disfigurement could lead to negative perceptions of those with facial disfigurement, while an increase in exposure could lead to more positive perceptions. When the stimulus is novel, the subject will often avoid it until they have explored it (perhaps by staring) in order to investigate if it is a threat or not. Once it is determined that the stimuli is not a threat, people are more likely to approach the formerly unfamiliar stimulus and to experience positive emotions about it.

Another aspect of the repeated-exposure paradigm is that even subliminal exposures (i.e., exposures that the subject is not aware of) are more effective than those that the subject is aware of (Zajonc, 2001); therefore, simply coming into contact with people with facial disfigurement, even if interaction does not occur, could have an effect. Positive repeated-exposure is an easily-facilitated and effective method that could be used to reduce stigmatizing behaviors. The repeated-exposure paradigm, in particular, could be used to reduce stigmatizing behaviors toward people with facial disfigurement because it does not require a positive or negative reinforcements following exposure like classical conditioning requires.

*Implications Related to Staring*

Staring at people with facial disfigurement (in comparison to those without facial disfigurement) can be explained by the novel stimulus hypothesis (Langer, Fiske, Taylor, Chanowitz, 1976), which states that novel stimuli evoke behaviors from the observer such as staring in order to make them more familiar (Langer et al., 1976). When an observer investigates stimuli to make them less novel, they are making their environment more predictable and understandable (Langer et al., 1976). Langer et al. (1976) suggested that when the novel stimulus is another person, there are strong social norms that sometimes keep people from staring, or hide their staring. Langer et al. proposed that discomfort exists in interactions between those with and without disabilities because "one's desire to explore a novel stimulus arouses the fear of violating a social norm against staring" (p. 452). According to Langer et al., the more novel a stimulus, the more staring it will provoke. Thus, because facial disfigurements are uncommon, many people have infrequent (if any) contact with people with facial disfigurement, making them perhaps more novel than other people with disabilities.

Typically, staring has a negative connotation. Parents teach children not to stare; however there are some cases when staring is appropriate (e.g., photos, movies). In these cases where staring is not seen in a negative light, there is generally little discomfort in staring, even if the subjects in the photographs or movies are people with disfigurement. Because participants in the current study were instructed to view the photos of people with facial disfigurement, there was probably little discomfort felt by them when the desire to stare at the persons with facial disfigurement was felt.

*Implications Related to Recreational Therapy*

Recreational therapists are trained and credentialed to work with people with a variety of physical and mental disabilities. Recreational therapists use interventions and modalities that address social, emotional, physical, and mental aspects of an individual's treatment. Common interventions and modalities used by recreational therapists include but are not limited to: physical fitness (sports, adapted sports, yoga, exercise, etc.), relaxation (biofeedback, deep breathing, yoga, guided imagery, etc.), community integration, social skills training, anger management, creative expression (arts and crafts, dance, music, creative writing, etc.), adventure therapy (challenged courses, ropes courses), team and group building, stress management, values clarification, and activities of daily living (Williams, 2008; Etzel-Wise & Mears, 2004). These interventions and modalities can be used independently or in combinations in order to help facilitate a better quality of life for the individual through habilitation and/or rehabilitation.

People with disabilities are often negatively stereotyped based on the comparison of them to those without disabilities (Devine, 2008). Sometimes these stereotypes lead to assumptions that people are further impaired than they actually are (Devine, 2008). According to the Americans with Disabilities Act (ADA), an individual with a disability is defined as "a person

who has a physical or mental impairment that substantially limits one or more major life activities, a person who has a history or record of such an impairment or a person who is perceived by others as having such an impairment" (US Department of Justice, 2005, p. 1). Life activities are described by Devine (2008) as "walking, breathing, seeing, thinking, performing tasks, speaking, learning, working, driving, and participating in community life" (p. 52). Even if a person with a facial disfigurement has no functional limitations, he or she is typically covered by the ADA because of the perception of impairment by others.

Negative stereotypes of people with disabilities often lead to negative perceptions about them, which in turn has historically lead to segregation and discrimination (Devine, 2008). While it is unlikely that any recreational therapy intervention might affect the physical nature of a facial disfigurement, a recent paradigm shift in health care has created opportunities for recreational therapy to positively affect the quality of life of people with disfigurement.

For decades, the *Medical Model* dominated Western health care. Under this model, recreational services were prescribed by a physician and were used to treat impairment and improve functioning. The focus of the Medical Model was on cause of disability in physical, emotional, social, cognitive, and sensory domains. As the Medical Model has given way to the World Health Organization's Internal Classification of Functioning, Disability, and Health (ICF), a more holistic view of disability has been embraced within health care. Within the ICF model, recreational therapists and other health care providers are encouraged to view people holistically, thus considering not only the etiology of disability, but also social and environmental factors that contribute to disability. This paradigm shift may allow recreational therapists to address critical needs of people with facial disfigurement. These needs include self-esteem and self-image, and community reintegration.

There are many programs that recreational therapists can use to improve self-esteem and self-image (Williams, 2008). Some of the programs used are activity based while others are reflective; and in some instances a combination of the two are used (Long, 2008). Most recreation activities that allow the client to experience success and self-exploration can be used to address self-esteem and self-image (Williams, 2008). Adventure programming, one of the main modalities used to address self-esteem and self-image, focuses on allowing the client to successfully reach a goal in order to gain a feeling of accomplishment and success (Williams, 2008; Long, 2008). Journaling and expressive arts are reflective modalities used to address self-esteem and self-image (Long, 2008); these types of activities are focused on the internalization of messages clients receive from others, as well as how clients process the messages (Long, 2008).

Community reintegration is designed to help the client adjust to returning home following an injury or illness (Long & Robertson, 2008). Community reintegration is often used with clients who have sustained life-changing disabilities, such as facial disfigurement (Williams, 2008). There are three primary purposes of community reintegration: (a) reduce stigma associated with disability, (b) practice skills learned in treatment in a real-world setting, (c) familiarize clients with community resources (Williams, 2008). While there is little research on the effectiveness of community integration, many recreational therapists believe it is an effective treatment modality (Williams, 2008).

When working with people with disabilities, such as facial disfigurement, there are a variety of roles the recreational therapist can take. An important part of the recreational therapist's job is to understand the experiences people with disfigurement might face and implement treatment modalities that will help to prepare them for these experiences. Grandfield,

Thompson, and Turpin (2005) concluded that "in order to understand the experiences of people with a disfigurement, it is also important to investigate the attitudes toward disfigurement present in society" (p. 822). Literature on disfigurement has neglected the area of attitudes toward disfigurement, as well as the use of experimental design. The attitude, in general, of society toward people with disfigurement is influenced by many factors (Grandfield et al. 2005; Devine, 2008). Because the attitude of the general population is influenced by many factors it is important to research the nature of attitudes toward disfigurement because it could yield results which could "facilitate the development of community and clinical interventions for those distressed by the negative reactions of others" (Grandfield et al., 2008, p. 823). Thus, the results of this study support the findings of qualitative research of persons with disfigurement (Bisson et al., 1997; Brown et al., 2008; Kent & Keohane, 2001; Lawrence, Fauerbach, Heinberg, et al., 2006; Lawrence et al., 2007; Newell & Marks, 2000; Van Loey & Van Son, 2003), suggesting that people with facial disfigurement are rated more negatively and stared at in comparison to their non-disfigured counter parts.

### *Limitations*

A primary limitation of this study is that a convenience sample of college students was used. Although college students are commonly-used in social science research due in part to convenience, their use may present limitations of generalizability of findings. College students are not representational of the general population of the US in terms of age, socio-economic status, race, and education. As such, the findings of the current study are limited. A second limitation of the sample was its size. Although recruitment was expanded to offer participation to students in more than the originally-proposed number of courses, the target of 50 participants was not reached. Therefore, the sample is not representation of US college students either.

It is possible that participants responded to the items on the attitude scale in a socially-desirable way. Carver, Glass, and Katz (1978) suggested that negative reactions are not always the response when faced with a stigmatizing stimulus. According to Carver et al. one response to stigma that is contradictory to the assumed negative reactions is an over-reaction in the other direction. In other words, when presented with a stigmatizing stimulus (e.g., facial disfigurement), people attempt to show their lack of negative perception toward the stimulus, thus they make their evaluations favorable by consciously distorting their feelings.

Additionally, because the participants in the study were from several of the same courses, there could have been talk between participants who had already participated and those who were planning to participate. Because some deception was used in this study, talk between students who had participated and those who had yet to participate could have compromised the full purpose of the study. If participants were aware of the true purpose of the study, they could have consciously altered their eye movements as well as their questionnaire responses.

There was a range of severity of facial disfigurement among the three volunteers whose photographs were used in this study. One of the photographs in particular depicted a person with a significantly less severe form of disfigurement than the other two. Participants may have perceived the person with the less severe facial disfigurement differently than the two with severe facial disfigurement. Since the facial disfigurements were not of the same severity, there could be a lack of congruence between how participants viewed and ranked the photographs, potentially leading to confounding data. Additionally, because photographs of people without facial disfigurement outnumbered photographs of people with facial disfigurement three to one, it is likely that the data related to perception of people without disfigurement was more normally distributed than the data related to perception of people without facial disfigurement. Although

relatively large for a study of this type, a larger sample for the current study would have helped ensure normal distributions.

Lastly, although based largely on the Digitally Altered Photograph Scale (Rankin & Borah, 2003), the Facial Disfigurement Photograph Scale is a researcher-designed instrument that had unknown psychometric properties. It was assumed that the Facial Disfigurement Photograph Scale accurately measured perceptions of people with facial disfigurement.

### *Future Research*

This study supported the findings of previous studies (Bisson et al., 1997; Brown et al., 2008; Kent & Keohane, 2001; Lawrence, Fauerbach, Heinberg, et al., 2006; Lawrence et al., 2007; Newell & Marks, 2000; Van Loey & Van Son, 2003;) which indicated that people with facial disfigurement were stared at and perceived more negatively than people without facial disfigurement. Future researchers could consider using the repeated-exposure paradigm (Zajonc, 2001) to examine the effects of positive exposure on perceptions of people with facial disfigurement. Examining the effects of exposure using the repeated-exposure paradigm could consist of a pre-test which followed the methods of this study, followed by an exposure intervention, then a post-test identical to that of the pre-test.

This study focused on staring as measured by fixation time, however another indicator of staring may have yielded different results. Rather than using fixation time, future researchers might consider using the number of fixations as an indication of staring. Measuring the number of times a spectator refers back to the photograph of a person with a facial disfigurement would help determine if the facial disfigurement attracts repeated attention.

Using a population which is more representational of the general US population would also be beneficial. Using a more representational sample might yield different results, which

could uncover more information into the relationship between staring and perceptions towards people with facial disfigurement.

Another area for future research is the FDPS. The FDPS was a researcher designed scale based largely on Rankin and Borah's (2003) Digitally Altered Photograph Scale. Additional research into the reliability and validity of the FDPS would be beneficial in determining if it is a reliable and valid scale for measuring perceptions toward persons with facial disfigurement.

### *Conclusions*

These results of this study suggest that a person with a facial disfigurement will be stared at longer than a person without a facial disfigurement. Data also indicated that people with a facial disfigurement will be perceived less positively on many traits (e.g., capability, popularity, optimism, attractiveness, intelligence, employability, trustworthy, effectiveness, honesty) than people without a facial disfigurement. While the data indicated that people stare more at and have generally less-favorable perceptions of people with facial disfigurement, there does not appear to be a significant link between staring and perceptions.

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# APPENDIX: IRB APPROVAL LETTER

**University and Medical Center Institutional Review Board**
East Carolina University, 600 Moye Boulevard
1L-09 Brody Medical Sciences Bldg. • Greenville, NC 27834
Office **252-744-2914** • Fax **252-744-2284** • **www.ecu.edu/irb**
Chair and Director of Biomedical IRB: L. Wiley Nifong, MD
Chair and Director of Behavioral and Social Science IRB: Susan L. McCammon, PhD

TO: Rebecca L. Halioua, LRT, CTRS, Department of RCLS, ECU, 2407 Carol Belk Building

FROM: UMCIRB

DATE: March 3, 2010

RE: Expedited Category Research Study

TITLE: "Staring and Perceptions Towards Persons with Facial Disfigurement"

**UMCIRB #10-0092**

This research study has undergone review and approval using expedited review on 2/26/10. This research study is eligible for review under an expedited category numbers 4 & 7. The Chairperson (or designee) deemed this **unfunded** study **no more than minimal risk** requiring a continuing review in **12 months**. Changes to this approved research may not be initiated without UMCIRB review except when necessary to eliminate an apparent immediate hazard to the participant. All unanticipated problems involving risks to participants and others must be promptly reported to the UMCIRB. The investigator must submit a continuing review/closure application to the UMCIRB prior to the date of study expiration. The investigator must adhere to all reporting requirements for this study.

The above referenced research study has been given approval for the period of **2/26/10** to **2/25/11**. The approval includes the following items:

- Internal Processing Form (dated 2/12/10)
- Informed Consent A (received 2/15/10)
- Informed Consent B (received 2/15/10)
- Informed Consent C (received 2/15/10)
- Research Script
- Flyer
- Questionnaire
- Sample Photo and Calibration Screens
- Reason for Deception
- Letters of Support from J. Narr and C. Watts

The Chairperson (or designee) does not have a potential for conflict of interest on this study.

**The UMCIRB applies 45 CFR 46, Subparts A-D, to all research reviewed by the UMCIRB regardless of the funding source. 21 CFR 50 and 21 CFR 56 are applied to all research studies under the Food and Drug Administration regulation. The UMCIRB follows applicable International Conference on Harmonisation Good Clinical Practice guidelines.**